LATER FROM EUROPE

ARRIVAL OF THE ASIA.

WRECK OF THE SHIP OCEAN HOME. SEVENTY LIVES LOST.

The mail steamer Asia, which sailed from Liverpool Saturday, 6th inst., arrived at her dock on Thursda morning about 7 o'clock.

The United States mail steamship Arago arrived at

The United States mail steamship Arago arrived at Southampton at 7 a. m. of Thursday the 4th instant.

The Brokers' Circular thus reports Liverpool Cotton Market: The trade having increased their purchases throughout the week, and an active business having been experienced on the part of speculators and exporters, a buoyant tone has been imparted to the market, and although holders have shown their stocks freely, an advance of 1-16 24 P B must be noted in most cleanes of American. Sales of the week 34,410 bales, including 14,826 on speculation, and 9,200 for export. Sales Friday 6,000 hales, including 2,000 on speculation and export, with a fair deamand, at full prices. Stock (on 5th) 722,310 bales, including 329,710 American. Fair Orleans 74d.; imidding Orleans 61d.; fair Uplands 61d.; midding Uplands 63d. in manchester, business continues good, and buyers evince more disposition to operate.

A favorable change in the weather has produced a decided reaction in the Coax Markets throughout Great Britain during the week. At Eiverpool the decline in Wharr smoother to about 3d. P 70 B on the fine descriptions, and 6d. smoother to about 3d. P 70 B on the fine descriptions, and 6d. The smoother of the second on the coax smoother to about 3d. P 70 B on the fine descriptions, and 6d. Ploug has experienced a fair inquiry, and had receded only 1, when a complete on the coax smoother of the coax of the second only 1, white, 93,000 and 1 pobl. INDIAN COAX, with small demand, is not et al. (10 per 10 p

In Ashes, Pots sold on the spot and to arrive, at 39/92/6. No sales reported in Tar of Tuppervine. Spirits of Tuppervine is in small parcels at 30/93/4. Linesen Oil, in fair demand at 38/939/8. Spat and Cod Oil, s mchanged for demands at 18/62/4/4. Rice unchanged at former rates. Money is tighter, the export of specie continuing on large scale, and absorbing all imports. Funds had declined Con-ols closing (Friday) at 94/293 for money and account. American Stocks were reported without much change. Havre, August 30 to Sept. 2, inclusive.—Cotton market firm; sales of the week 7,800 bales; stock, 36,500 bales. iew-Orleans tres ordinaire, 38f.

THE STATE OF EUROPE.

Correspondence of The N. Y. Tribune.

LONDON, Friday, Sept. 6, 1856. The news from America took Europe by surprise there being scarcely any one sufficiently acquainted with the relations of the United States to be prepared for the refusal of the House to vote the Army appropriation. Theoretically, all the Constitutions of Europe grant the privilege of steeping supplies to the House of Representative; be practically, not even the Parliament holds the strings of the public purse. In England, a lasting collision between Parliament and the Crown is almost impossible in our days, as an adverse vote leads either to a dissolution of Parliament or to a ministerial crisis, but certainly the House would choose some battle-ground beside the Army appropriation bill, for such is the prejudice in favor of an organized standing army that even the strongest Radical would hesitate to leave the country without defense. In France and Germany, any vote which might be construed into stopping the supplies, becomes immediately the pretext for a coup d'état, under the plea that the security of the country requires such a measure. In fact, people in Europe believe that the very first necessity of a country is to be governed, and self-government having been destroyed everywhere, they cannot conceive how anarchy might be prevented without a strong Executive, should it even be dishonest, corrupt or despotical. Such being the ideas of Europe about government—faithfully represented by The London Times—the papers are at a loss to understand the machinery of the United States Government, and he spirit of the Congress which "leaves the "country without defense." They always forget that the 10,000 or 14,000 regulars are in fact not the defense of the United States, and that the backwoodemen require no army for keeping the savage tribes at respectful distance from white settlements, or for defeating them in case they should dare to attack the blockhouses. The Republicans of Europe-I do not mean the Republicans of expediency such as poor Lamartine and his compeers of 1848, who betrayed Freedom by half measures and by endeavors to conciliate the Czar and the Kaiser, but those men who fought | ceedings which related to the consideration of this and bled and suffered for liberty-begin to admire the energy and resolution of the Northern States, and despise the Southern slaveholders the more, who hide their despotic tendencies under the nam of Democracy. The stars on the United States flag very properly represent the former—the stripes stand for the South.

Lamartine has in a recent publication himself destroyed the little halo which still surrounded his political name. He avows that in 1848 he wished to unite Italy under the protection of France, just as the different states of ancient Greece were united under the protection of the Macedonian phalanx! Lamartine seems not to be aware that the thraldom of Greece and the extinction of her genius dates from the time of Philip and Alexander of Macedon.

Diplomatists delight in congresses and confer-

ences, and are but too glad to display their importance to the uninitiated public. Accordingly, they are never at a less to find a pretext for their meeting. The Greek question may soon become an opportunity for them to review the state of Europe, and perhaps to bring the Neapolitan affairs to a crisis. According to the original Convention about Greece, Prince Otho of Bavaria got the throne, and was allowed to remain a Roman Catholic, but his successor was at any rate to be of the Greek Catholic religion. The imbecile King married a princess of Oldenburg, but their union remained barren; the grown of Greece reverts therefore to Prince Adalbert of Bavaria, who has lately married a Spanish princess. As he refuses to change his creed, the representatives of England, France and Russia hav sooner or later to regulate the succession, and either to modify the original Convention, allowing Prince Adalbert to remain a Catholic, or to select some other German prince, ready to sacrifice his religio: to a throne. King Otho's recent visit to Germany is said to be connected with this question.

The nephew of the King of Prussia, a Prince of Mecklenburg-Schwerin, has recently fled from Berlin, deserting the army, in which he held the rank of a major, and leaving debts to the amount of about 150,000 dollars behind him. It is said that he goes to the United States, and that the King of Prussia pays his debts. Some six months back a German author, Dr. Vehse, was kidnapped in Hamburg, transported to Berlin, and sentenced to six months' imprisonment for having disrespectfully revealed some scandalous details about ne Prince's private life and recklessness. Dr. Vehse's statements have now suddenly got the most positive confirmation by the flight of the

The invention of Mr. Bessemer to make sem steel from east iron by introducing hot air into the molten mass of iron is destined to revolutionize the iron trade and manufacture. All the English papers

the same time articles on the invention of the Austrian Captain Uchatzius, to make steel from wrought iron within half an hour, by an entirely new process, which proved most successful. These improvements of iron manufacture are certainly more important for the future of mankind than all the conferences of diplomatists.

Murat is preparing for action, Napoleon apparently remaining neutral, ready to acknowledge him if he succeeds, and to blame him if he fails to de throne King Bomba of Naples.

INTERESTING DIPLOMATIC INTELLIGENCE.

PARIS, Thursday, Sept. 4, 1856.

All the details in regard to the Maritime Law, and the causes which shaped the sentiments of Mr. Marcy's circular, have not yet been made public. After being made acquainted with certain occurrences which preceded the signing of the "declaration of Paris," the reader will perhaps be astonished at the mildness of language which pervades Mr. Marcy's circular.

More than two years ago, as is stated in the circular, propositions were made by the Government of the United States to the maritime nations, for the adoption of the principles contained in the second and third paragraphs of the "declaration of Paris." The French Government acknowledged the justice of these principles and the propriety of their adoption. The English Government also acknolwedged their justice, and so far as heard from the other maritime nations concurred. But there was a question of national amour propre which prevented England and France at least from signing the American propositions. They felt unwilling that the United States should occupy the position of taking the lead in so great a question as that of regulating the maritime law of the world. So they procrastinated, and urged the war as a reason for their hesitation. But France seemed more willing to bring the affair to a close than England, and the French Minister of Foreign Affairs had gone so far in his communication with the American Government as to give the latter the assurance-if not in so many words, at least in the general tenor of his communication—that his adhesion to the American propositions was secured. Up to the period of the commencement of the Peace Congress at Paris nil the communications and conversations of M. Walewski with the American Minister at Paris looked to this result. The American Government had no complaint but that of hesitation,

But all at once the Foreign Minister ceased to talk on this subject. If it was introduced, he evaded it. There was evidently something wrong, and our Minister was not long in penetrating the difficulty. A plan was proposed (by whom it is not known) by which the honor of introducing a new maritime law should be taken out of the hands of the American Government and given to the great nations of Europe convened in the Peace Congress of Paris. This was the origin of the Maritime Declaration of the Congress of Paris. If the United States had not been on the point of securing the honor of this piece of diplomacy, the "Maritime Declaration" would never have figured as an appendage to the celebrated Peace Treaty of the 30th March. But for the interference of the United States in this question, it would never have been thought of by the Peace Congress; or if it had been thought of and proposed, it would have been treated as a subject not within the province of that body to

Neither would it do to adopt the measure as proposed by the United States. So two other measures were added: one useless, because unmeaning (that relating to blockades), and the other abolishing a measure which takes from the United States, in case of its adoption, a great portion of her strength in time of war. These two measures, easy enough for France and England to adopt, gave to the "Paris declaration" a form of originality which permits the Congress to claim the initiative in the affair, to the exclusion of the United States.

The French members of the Congress, I am told, made a proposition that the United States should be allowed to participate in that part of the pro-Congress was limited to a month, it would be impossible for the American Minister to confer with his Government in time to participate by authority in its action, and that it was not likely he was authorized beforehand for such an emergency. The American Government, therefore, was treated as if she had never uttered a wish on the subject of maritime law; in other words, she was placed on a footing with all the other nations of the world nonsigners of the Treaty of Paris: Here is our law, will you sign it?

I think that the reader will agree with me that the language of Mr. Marcy in reply to this question is, in view of the circumstances, too mild in

The Count Walewski, French Minister of Foreign Affairs, has given notice that he will reply to Mr. Marcy's note. His reply will first be submitted to the other Powers, signers of the Maritime Declara-

I am told that M. Drouyn de l'Huys, the ablest diplomat of France, supports the views embraced in Mr. Marcy's note.

As you already know, this note of the American Secretary, although anticipated to a certain extent in its positions, has fallen among the diplomats of Europe like a firebrand. The discussions of the ournals are only the reflection of this excitement in the diplomatic ranks. In all the attacks of which it has been the object, but two proofs have been brought forward which weigh heavily against it. These are, first, a document of Benjamin Franklin, written while Minister in France, in which it is declared that privateering is inhuman and uncivilized, that in the total of its results it is useless, and may even become worse than useless by the idle and pernicious habits which it engenders in those who are engaged in it. And second, the Annual Message of President Polk to Congress in 1846. where, in speaking of the war then going on with Mexico, he flatly condemns the system of giving letters of marque. In that year the Mexican Government sent to Cuba and Porto Rico blank commissions for corsairs and blank certificates of naturalization to Gen. Salus. President Polk immediately invoked the treaty of the 20th of October, 1795, by the terms of which, if either citizens of the United States or subjects of Soain should receive letters of marque to act as privaluers, they should be punished as pirates. It is therefore urged against Mr. Marcy's note, that the theory which he now urges against the Congress of Paris tends to justify retroactively the conduct of the Mexican Government.

The report that the American Government had advanced the salary of its Minister at Paris to an equality with that of London, has been the source of satisfaction to the French Government. In Euare filled with articles on the importance of the inrope, the salary of a Minister is almost a political
be the most imperishable of things, assumes, when
heated strongly, an affinity for oxygen more powerful

exceed the necessary expenses, they estimate the cor pliment which a foreign nation wishes to pay by the respective amounts they pay their diplomatic agents (titles being equal). The price of living in Paris and London is about the same, the amount of business to perform at each legation is equal or nearly so, and when the bill of last year passed, giving the Minister at London a preference in salary over the Minister at Paris, the French Government did not exactly understand it.

In like manner the French Government has raised the salary of its Minister at Washington from eighty to a hundred and ten thousand francs. But this still falls short of the pay of the British Minister, when there is one, which I understand to be thirty thousand dollars. But France urges that she transacts very little of her official business with the American Government at Washington, and that in consequence her legation there is a sinecure. But this augmentation took place some time ago, at the instigation of the American Minister here, and it is now probable, since the passage of the act equalizing the pay of the American Ministers at London and Paris, that the pay of the French Minister at Washington will be brought up to that of the English Minister at the same point. The American Government could not expect, looking at this question as a point of etiquette, that the French Government would be justified in paying M. Sartiges at Washington the same salary as it pays M. de Persigny at London, since the latter is an Embassador, and must sustain his rank as such.

The American Minister at Paris has been astonished lately to see in circulation in the journals of the United States and France a report that he was about to resign his post. Mr. Mason has expressed no such intention, and regrets that a report which puts him in a false position before the Government to which he is accredited, should have been put in

GREAT BRITAIN.

LOSS OF AN AMERICAN SHIP AND SEVENTY-SEVEN LIVES.

PLYMOUTH, Friday Evening, Sept. 5.—The American ship Ocean Home and the Cherubim came into collision at 2 o'clock this morning off the Lizard: the former sank in twenty minutes afterward, taking with her seventy-seven souls. She was bound from Rotter-dsm to New-York, with German emigrants, who, with the crew and officers, numbered one hundred and five

The master, Merryman, and 21 of the passengers and crew were landed at this port this evening by the Perseverance pilot-boat. The master is seriously contused. The Cherubim received little damage, and proceeded to London. The second mate, steward and our seamen of the Ocean Home got into the long-boat, but their fate is doubtful.

Additional Particulars .- The Cherubim, Captain Smith, of Richmond, U. S., has a general cargo and a number of passengers, among whom are the widow and five children of the late British Consul at the port of New-York [Vice-Consul !], who died very suddenly fourteen days after sailing. The cutwater of this ship is knocked away, and some of the trenails and butte smashed, but she proceeded up the channel.

We find the following fuller account in a telegraphic

smashed, but she proceeded up the channel.

We find the following fuller account in a telegraphic dispath to The London Times:

"PLYMOUTH, Friday evening.—The pilot sloop Perseverance brought in here this afternoon the master, mate, and 10 of the crew, with 10 passengers, being all who are supposed to be saved from the ship Ocean Home, which left Rotterdam on the 1st inst. with 105 souls. The Ocean Home belonged to Brunswick, State of Maine, 646 tuns, Captain A. H. Merryman, and was laden with a general cargo of madder, gin, wine, block lin, &c., and bound to New-York; crew, including efficers, 17: passengers—men, women and children—88. This morning she was going down the Charnel under all possible sail, royals, topgallant studing-sails, &c., wind 8.E by S. on the port quarter; and at 20 minutes past 2 o'clock, when the Lizard bore North, distant about 24 miles, was run into on the North bow by the ship Cherubim, Capt.—, of 2,000 tuns, from New York for London.

"The foremast of the Ocean Home was carried over the off side, and she went down in about 20 minutes.

"Seven of the seamen jumped instantly into the rigging of the Cherubin. Most of the passengers were askeep in their berths, but ten contrived, with three of the crew, to get into a quarter boat, and in a sinking state to join the Cherubim, which was then at some distance. By the concussion the windlass was driven on the forehatch, which prevented the seamen below from coming on deck.

"Capt. Merryman ran to the after hatch to call the

coming on deck.

"Capt. Merryman ran to the after hatch to call the passengers, and was taken down with the ship, after being entangled with the rigging; he came to the surbeing entangled with the rigging; he came to the surbeing entangled with the rigging; he came to the surface, caught hold of a piece of wood, and then of a face, caught him four hours, when he,

face, caught hold of a piece of wood, and then of a cabin door, which supported him four hours, when he, with the mate, who was saved in a similar manner, was rescued by the Cherubim's boat.

"The second mate and two hands left the Ocean Home in one of the boats, but it is supposed that they perished.

"LIST OF SAVED.

"Crew—Captain, A. H. Merryman; chief officer, — Shields; ship's Cook. Daniel Reed; passengers' cook, John Scott; sessen, John Anderson, Alfred Aspigoin, Charles Anderson, John Daton, Edward Brown, Christian Rash, Simon Kull, and James Gunninghame.

Cunninghame.

"Passesgere—Walter Makey, Derrick Anderson, Gambier
Wynfell, Kais Acmalac, Abraham Kelley, Martin Dabant, Areva
Walssen, G. Vensink, H. J. Tet Sisa, and G. J. Ter Horst.

"The crew of the Ocean Home, in charge of the
American Consul, and the passengers, in charge of the
Shipwrecked Mariners' Society, have been safely lodged

THE IRON MANUFACTURE AND MR. BES-SEMER'S INVENTION.

SEMER'S INVENTION.

From The Birmingham Journal.

The interest which has been excited by the improvement recently proposed in the manufacture of iron and steel by Mr. Bessemer, and the vast importance to the country in general, and especially to this neighborhood, of the manufacture in question, render it unnecessary that we should apologize to our readers for occupying their attention with some remarks on the iron manufacture. In order that those whose studies or avocations have left them unacquainted with the general nature of this interesting manufacture may the better comprehend the exact bearings of a process which is exciting an attention unparalleled in modern times, we will give such a brief sketch of the process of manufacturing iron as will enable them, generally at all events, to estimate the importance of Mr. Bessemer's invention.

of manufacturing iron as will enable them, generally at all events, to estimate the importance of Mr. Bessemer's invention.

Iron is the most extensively distributed of the metals. It exists largely both in the mineral and organic kingdoms, being a constituent of an immense number of natural minerals, and existing as an essential element in the blood of vertebrate animals. The minerals from which iron may be extracted are numerous; but we will only notice those which are important in the British isles. Peroxide of iron (consisting of 56 parts by weight of iron, combined with 24 parts of oxygen) constitutes the mineral called red harmatite, of which great quantities exist in Lancashire, Cornwall and elsewhere. This ore is used in England principally for mixing with other ores, but in Sweden and Russia iron is made from it direct. In France, brown hæmatite (a hydrated peroxide of iron, a mineral of the same composition as the last described, but containing water) is much used in the manufacture of iron. But it is the clay iron-stone which yields the enormous supply of iron produced in Great Britain. This ore is an impure carbonate of iron, containing about 30 per cent on an average of pure iron. Pure carbonate of iron consists of 28 parts by weight of iron, and 8 parts of oxygen (exide of iron), combined with 6 parts of carbonate of iron is in clay, iron ore mixed with clay, oxide of manganese, lime, and magnesia.

The extraction of the metal from this compound is effected by a procese, the general principles of which are very simple. First, the ore is roasted; that is to

The extraction of the metal from this compound is effected by a process, the general principles of which are very simple. First, the ore is roasted; that is to say, it is made into heaps with coal, and ignited; the carbonic acid and water of the mineral are driven off, and the ore is left in a porous state, favorable to the subsequent processes. We may regard the roasted ore a an impure oxide of iron, containing, of course, all and the ore is left in a porous state, favorable to the subsequent processes. We may regard the roasted ore as an impure oxide of iron, containing, of course, all the earthy matter, and whatever was not volatile in the native mineral. If we reflect for a moment on what we have te accomplish in order to obtain the iron from this compound, we shall soon be able to devise the means of doing it. We have iron combined with oxygen, and we wish to separate the latter from the former, so as to leave the metal free. How shall we accomplish this? Clearly only by presenting something to the compound which has a higher affinity for oxygen than iron has. What is this? It is charcoal or carbon. This element, so inert at ordinary temperatures as to

than that of any other known substance; and there are few metallic oxides which do not yield oxygen to carbon at an elevated temperature, and thus liberate the metal in a reguline or metallic state. This process of depriving metallic oxides of their oxygen is called reduction, and the reduction of the orce of item, copper, lead, zinc, &c., consists mainly in heating them, after suitable preparation with carbon, and thereby deoxidizing them. To reduce the iron, then, we have only to heat it with charcoal. But since the ore contains a large quantity of earthy matin heating them, after suitable preparation with carbon, and thereby deoxidizing them. To reduce the iron, then, we have only to heat it with charcoal. But since the ore contains a large quantity of earthy matter, the particles of iron, when reduced, would be held in this porous earthy matter like water in a sponge, and, although reduced, the metal would remain in an unavailable form. How can we separate the earthy matter? Not by mechanical, but by chemical means. If we mix with the ore something which will form a ready fusible compound with the earthy matter, that earthy matter will liquify, and the particles of melted iron will fall through the liquid and collect together into a mass. Lime is used for this purpose. It is as though a sponge filled with water dissolved on the application of a gentle heat, the water in the sponge forming the lower stratum, and the matter of the sponge itself a light oily liquid, floating on the water. Our readers will now have a general notion of the process which they see carried on so extensively in the neighboring iron districts. In huge towers which stud the country, thick almost "as leaves in Valambrosa," day and night, and from year's end to year's end, touling engines pour thousands of tuns of the materials we have enumerated—iron ore, coke and lime. Blast engines force streams of compressed air into the ignited materials, and the mass slowly sinking in the tower melts into two strata, the one the slag, the other the iron. The former flows off from an upper opening, and the latter is drawn off at intervals from holes made in the lower part of the furnace. The molten metal is conducted along channels made in sand, and slowly filling rough molds connected with these channels, gradually solidifies, and constitutes the pig iron of commerce. Let us pause awhile to ask our readers if they have ever seen the tapping of of a blast furnace at night? If they have not, we tell them that within an hour's journey there is a sight the leauty and majesty of which they have no conception

shoot into the air from surface of the metal, burn with a beautiful scintillation, and fall hissing down, "a hailing fount of fire."

But to return to our facts. The coke, we have seen, constitutes both the fuel from which the necessary heat is produced, and the reducing agent, by which the oxide of iron is deoxedized; the lime makes the earthy matter fusible, and enables the iron to separate itself therefrom. If our object were to give a somewhat full account of the iron manufacture we should stop here to discuss the many important questions which present themselves at this point—the enormous quantity of air which each day is poured through these huge furnaces, the deeply-interesting chemical changes which it undergoes as it filters through the fiery column, and the remarkable products which have yielded themselves at its exit, to the researches of Bursen, Playfair, and others; the prodigious quantity of heat which is carried off by the blast of cold air, and the generally which has resulted from the heating of the fire before its introduction into the furnace; the change in the fuel which has followed the use of the hot blast, and the change in the characters of the iron produced, which has followed that; the modifications in the ilme flux which different ores require, and the consequences which result from a too fusible or too infusable a sigg; the objects to be attained by the mixture of ores, and the necessity for the application of minute chemical knowledge to the perfecting of a manufacture so simple in general principle, so obscure in the details. minute chemical knowledge to the perfecting of a manufacture so simple in general principle, so obscure its details; but all these things we must leave unnoticed, and confine ourselves to such particulars as have a direct bearing on the process proposed by Mr.

Bessemer.

The method of manufacture we have roughly described produces iron, but not pure iron; that has never been produced but by the chemist, and but few eyes have ever seen it. The iron produced is cast iron, which consists mainly of iron, but is contaminated with a great variety of impurities, from which it is difficult to free it. Just as in the fermenting of grape juice, the principal change is the conversion of sugar into carbonic acid and alcohol, during the occurrence of which sundry small decompositions and transformations take place, giving rise to products on which the flavor or bouquet of the wine depends; so, in the reduction of iron from its ore, although we obtain a product containing penhaps 95 per cent of iron, the remaining 5 per cent consists of a long array of foreign ingredients, all existing in some form of combination in the materials employed; these have been so affected during the reduction of the iron as to have assumed a state in which they could combine with iron, and hence we discover that the iron drawn from the furnace is invariably contaminated with them. Although small in quantity, the effect which these impurities have upon the physical properties of the iron is truly wonderful. One per cent of phosphorous, or a scarcely larger proportion of sulphur, has a most prejudicial effect upon the iron containing it. The principal element which, in the blast furnace, enters into combination with iron is carbon or charcoal. The metal is capable of combining with 5 per cent of its weight of earbon, and many kinds of cast iron contain nearly this quantity. Steel is a compound of iron and carbon, containing less carbon than east iron; and the production of steel from cast iron is simply the removal of a portion of the carbon.

If cast iron from the blast furnace consisted of iron and carbon only, the production of steel and wrought iron therefrom would be easily effected; but cast iron Bessemer.

The method of manufacture we have roughly des-

If cast iron from the blast furnace consisted of iron and carbon only, the production of steel and wrought iron therefrom would be easily effected; but cast iron contains, beside iron and carbon, the following impurities, some or all of them: silicon, sulphur, phosphorus; and, in minute quantity, aluminum, calcium and potassium. The conversion of cast iron into wrought iron consists in the removal of these impurities. This purification consists, in the ordinary manufacture, in submitting the iron to the action of air, and also to a mechanical kneading and squeezing process; these are effected in the refinery and puddling, and it is these processes which Mr. Bessemer proposes to supersede by his invention.

We ask the reader's careful attention to the follows:

sede by his invention.

We ask the reader's careful attention to the following: namely, that the impurities in cast iron consist of substances all of which combine with oxygen at a high temperature; carbon forming carbonic acid; sulphur, sulphurous acid; phosphoras, phosphoric acid; silicon, silicic acid (silica, or the matter of sand); and so of the rest. Now, the exposure of the cast iron to heat and air (containing oxygen) is sufficient to cause the substances to form oxygen compounds, either volatile or easily fusible, and incapable of entering iato combination with metallic iron. But since these impurities are diffused in small quantity through the mass of the iron, it is with great difficulty that air can be brought to act upon them. This, however, is done efficiently, but at great trouble; first in the refinery to a strong heat, in contact with air, and a large proportion of the carbon contained in the iron is burned off, as carbonic exide; the silicon becomes oxidized as silicic acid (silicia), and the iron also oxidizing, supplies a base (oxide of iron), with which the slag; itself upon the impurities yet contained in the iron is a most interesting chemical phenomenon, and will be noticed hereafter. Where a very superior iron is required, charcoal is used in this process instead of coke; and the iron so mace is called "charcoal iron." The impurities contained in ordinary coke are in part communicated to the iron, and injure its quality. The minute details of the refinery we need not describe.

The iron thus partially purified is next puddled. It is fued on the bed of a reverberatory furnace, and We ask the reader's careful attention to the follow

the refinery we need not describe.

The iron thus partially purified is next puddled. It is fused on the bed of a reverberatory furnace, and vigorously stirred about, so as to expose it to the action of the sir; oxygen is rapidly absorbed, and the guseous carbouic cande formed escapes in bubbles, giving the appearance of boiling, and burning at the surface with a blue fiame. As the carbon is burned off, the fusibility of the mass diminishes, and although the heat is increased as the process proceeds, the molten metal passes from a fluid to a spongy, semi-fluid mass. The fearful labor of the puddler now commences. He approaches creased as the process proceeds, the molten metal passes from a fluid to a spongy, semi-fluid mass. The fearful labor of the puddler now commences. He approaches the furnace as a much iron bar collects from the bed of the furnace as much iron as he can lift. This ball, or "bloom," he swings through the air under a forge hammer, or other compressing mechine. The blows at first crush the soft mass like dough, sending out showers of aparks, and squeezing liquid drops from the interior of the netal. The ball cools, the blows of the hammer now ring, the fire shower grows faint, and the liquid drops are replaced by scaly masses, which fall from the now almost scild metal. The kneading process is continued by passing the metal between rolls, in the grooves of which it is drawn out and compressed; it is doubled up and rolled, and heated and doubled up and rolled again. Have you never seen, as you traveled by railway or otherwise at night, the mouth of a black furnace opered on a sudden, sending a ray, as of sunlight, athwart the sky, and disclosing something within "so blinding white, so blasting bright," that the eye closed favoluntarily? If you returned laisurely to the sight, you observed half-naked men darting across the

light beams, their motions seemingly more capricious as d more sudden than the dancing of the images in a phantasmageria. In a stray beam of the quivering light you see now and then the heavy rocking head of the steam-engine, and the greasy teeth of the cogwheels shoot by, brighter than rows of pearls or falling wader drops: the blows of the forge hammer shake the earth, and the whirring of the wheels makes you giddy. What is all this? It is puddling; the conversion of east iron into wrought iron.

The metal so obtained is not pure, but is sufficiently so for commercial purposes. It contains carbon, sincon and other impurities, but in quantities so minute as not to affect its physical properties materially. It is a curious fact, worth here noting, that some of those impurities which have a most pernicious affect upon

so for commercial purposes. It commiss so minute con and other impurities, but in quantities so minute as not to affect its physical properties materially. It is a curious fact, worth here noting, that some of those impurities which have a most pernicious effect upon iron do not injure it in direct proportion to their quantity, but preserve their injurious action down to a certain point only, and below that proportion appear to be wholly inoperative.

The elimination of carbon, and the other impurities contained in cast iron, and its consequent conversion into wrought iron, takes place by virtue of that beautiful chemical process called cementation—a process in which a chemical change is propagated through a solid, or nearly solid body, from the exterior inward, or the reverse. This process is beautifully illustrated by the annealing of cast iron, or the production of malleable iron articles, so largely practiced in Birmingham and its neighborhood. Small articles made of cast iron are imbedded in powdered peroxide of iron, and heated for many hours, or days. The oxygen in the oxide of iron combines with the carbon of the cast iron and withdraws it; in short, burns the carbon. This removal of the carbon, commencing at the surface, gradually proceeds inward, until the whole substance of the movel of the carbon, commencing at the surface, slowly penetrates the mass.

In precisely the same way are the carbon and other impurities removed from cast iron in its conversion into wrought iron; the slag containing oxide of iron playing a most important part. The air can only act superficially on a large mass of fused iron, even when it is kept in motion; but the oxide formed superficially is mixed with the mass of the metal, and yields oxygen to the carbon, and other matters in its interior. The silicon becomes converted into silics, which subbles and burns as described. During the puddling and hammering, or shingling and piling of the iron, the slag is first thoroughly incorporated with, and, having effected its work, sq

the puddling and hammering. or shingling and piling of the iron, the slag is first thoroughly incorporated with, and, having effected its work, squeezed from the mass of iron.

Can these impurities be removed without this labor time and fue!? The production of wrought iron direct from the ere can unquestionably be effected, and, where wood charcoal can be employed in the place of mineral fue! perhaps economically. It is commonly done in the bloomery forges of America, and the Catalan forges of the Pyrenees; and these processes are but ameliorations of the earliest and rudest methods of making iron. Mr. Bessemer proposes to effect the same object by the use of air alone. He forces air into the fused cast iron in large quantity; the temperature rises very high, and the iron is said to be converted into wrought iron. The heat produced is thought to arise from the combustion of the carbon, the whole of which, together with the other impurities, is removed. It is surprising that the earbon, the maximum quantity of which is five per cent, should burn so rapidly as to produce the great heat described; and we want anxiously for such accurate experiments as shall prove, that the iron itself is not largely oxidized. It will also be most interesting both to the manufacturer and the chemist to learn that the slag can be perfectly removed from the mass of the iron without resorting to the mechanical treatment we have described. We can readily imagine that Mr. Bessemer may reduce the percentage of carbon so low by his process as to make the iron approximate in composition to steel. This has been done three quarters of a century ago; and the patent lists show that from 1771 to the present day scores, probably, of patents have been taken out for making steel direct from the ore. To effect this, however, is to do but little; what is wanted is not steel of an indifferent quality, but iron, from which the carbon has been so far removed as to leave the metal malleable. We can readily believe that Mr. Bessemer sprocess will expedit

more effectually that which is already done in the refinery furnace.

We cannot close our remarks without in justice informing our readers that there are at least "two "Richmonds in the field." Since the announcement of Mr. Bessemer's process, Mr. Martien of New-Jersey, in the United States of America, has pointed out a prior patent of his, the essential feature of which is the forcing of jets of air or steam through molten cast iron for the purpose of decarbonizing it. Other claimants of minor importance have likewise presented themselves. Into the discussion of the question of relative merit between these gentlemen we shall not enter. We may in a future number give such extracts from the specifications of their several patents as will enable our readers to judge for themselves. Meantime, however, we believe it is our public duty to state that, although we hope and believe that Mr. Bessemer's experiments specifications of their several patents as will enable our readers to judge for themselves. Meantime, however, we believe it is our public duty to state that, although we hope and believe that Mr. Bessemer's experiments will result in a great improvement in the manufacture of wrought iron, nothing is more likely to check the realization of so important an object than the extravagant excitement which at present obtains. In the hope of allaying the fears which many entertain that something like a "revolution" in the iron manufacture is impending—a notion which may not only lead to unfortunate commercial results, but is sure to be followed by a corresponding disappointment and neglect—we assure our readers that in principle nothing new is proposed by Mr. Bessemer. The refining of Iron by air is the only method of refining that has ever been practiced. Mr. Bessemer, however, proposes a more direct and rapid method of supplying the air, which appears to be more successful than could have been anticipated. This, as we have several times already said, we believe will prove to be a great improvement, but at present much remains to be done before these experiments can expand into manufacturing processes. In the interim, the iron munufacturer may safely proceed with his present operations, and, unless we are much mistaken, everything which he now possesses will be found of use when Mr. Bessener's process has attained its bighest perfection; for we think the invention under discussion will result in facititating the manufacture of iron, by adding a process, or substituting an improved apparatus for the refinery. That the pudding of from will be rendered unnecessary we very much doubt. In setting the pesition of rival claimants to the new method, we should also bear in mind that they differ from one another only in the details of the process; they all effect their object, more or less directly, by air. Iron, we repeat has never been purified by any other means; and through a long succession of ages, though we may trace a g

varied. The Egyptian smith, whose race was finished before antiquity began, made his iron by calling into operation the ordinary agency of the air.

Bessemen's plan of converting pig into malleable iron, without the intervention of the puddling furnace, took place on Monday, the 1st instant, on the premises of the paentee, St. Pancras, in the presence of some sixty or seventy gentlemen connected with the trade, from Wales, Staffordshire, Yorkshire, &c. The metal experimented upon was No. 2 Blaenavon cold blast, a quantity of which was melted in the common cupola, and from thence ran into the refining-furnace, the blast having been just previously turned on, and which was kept at a pressure of nine pounds to the inch. In a very short time, viz., eight minutes, the stream of cold air thus passed through the fluid metal caused it to commence boiling; in ten minutes more it was boiling furiously, throwing off quantities of scoria, with a slight explosion like the eruption of a volcano. In twenty-three minutes from the first, the flame emitted showed the metal to be of a white heat, and in twenty-six minutes, the whole of the carbon was consumed, as was immediately perceptible to the eye and ear, the flame and noise having ceased in a moment. The metal was then run out, but owing to a slight accident, it was impossible to ascertain the loss by the process. The produce was, of course, the subject of much curiosity, this being, according to Mr. Bessemer, malicable iron, ready for rolling into any desired form of rail, bar, etc. There was a good deal of difference of opinion among those present as to the truth of this, some thinking that the experiment had resulted perfectly, and others, and more cautious and practical men, thinking that the result was only a superior description of refined metal. From the fracture the writer is inclined to take this view himself; but even then a very great step had been made, as to make refined metal, without the use of any fuel whatever, and consequently at a greatly reduced cost, an

Whales had, unknown to the patentee, heat their own experiments, and were so satisfi-result that they have taken a license for four from Mr. Bressemer, paying him £10,000 a

TRAVELING IN BUSSIA.

Gorrespondence of The London Morning Fost.

Yesterday morning, at II o'clock, Earl Growthe British Embassy left St. Petersbury by train which runs direct to Moscow. There appeared to me (for I came by the same train which runs direct to Moscow. There appeared to me (for I came by the same train a crowd as an excursion day would have the most frequented station in London; by assured that the passengers were fewer than any day for the last twenty. I found many and presently the crush became frightful, are rent confusion hopeless. It was aggravated multitude of foreigners, who could not are selves in Russ, and some of them went about in a great variety of languages. No public can ment in Russia is wanting in polyglot officials tainly these poor interpreters were several while I was present. The rest of the functionary peak only Russ are active in unocasion patiently unraveiling the tangle of such They isten, for instance, to Smith, who have them in what he considers French, until has pronounced some leading word, like accounts. They isten, for instance, to Smith, who has them in what he considers French, until has pronounced some leading word, like a gage," which happens to resemble is equivalent. They then know Smith's difficult hurry him forthwith to the luggage-counter, which into a pantomime—in which Smith enacts his with furious energy, and the officials with penic clearness of signs—the number of parcels constitute traveler's effects is ascertained. Tickets are given to Smith, and he is impressively urged by itative gesture to put them in safety; nay, the sometimes thrust into his pocket. Before these are consigned to him, he is made to understant holding up of fingers, and a reiterating of the "rouble," that he must pay as many units of as he has parcels—that is, 3s. 2d. for each parch has five. He has paid his five roubles, and he is with distraction, for now his luggage has utterly ished. He becomes black in the face with his tions as a linguist; and it being impossible to him by any words in the whole Russian languages at last bodily dragged, with-every look of poline across the crowded booking-office to a counter four clerks are writing, and one is looking own counter. Smith was there before; it was there inteen roubles for his passage ticket to Moscov, languages are the same to the clerk who is not written roubles for his passage ticket to Moscov, languages are the same to the clerk who is not written roubles for his passage ticket to Moscov, languages are the same to the clerk who is not written roubles for his passage ticket to Moscov, languages are the same to the clerk who is not written roubles for his passage ticket to Moscov, languages are the same to the clerk who is not written roubles for his passage ticket to discover tranquillizes him in English, and explains that effects are safe, and that when he reaches his described his counter-maks in the meantime. However, is not even here that the passenger may be all remquillizes him in English, and explains that effects are safe, and that when he reaches his design to he will receive them at once, provided he design lose his counter-marks in the meantime. However, is not even here that the passenger may be said transact his first business at the station, for what takes out his purse and puts down his fare he is for his passport. If he has imagined that any diseveral previous permits which have been grants him in St. Petersburg will serve (for each chanchotel a new one) over and above the regular reach his original passport by his embassador or come when by the police,—if he has supposed that his sufficient, he is quite mistaken. He is sent battanother day. It is the inconceivable complication the Russian passport system, and its accessory thous, which, more than any other unpleasantnes, which were the normal state of the influx of foreigners into Russia, it would ream discribing his work of the influx of foreigners into Russia, it would ream discribing he worth the while of Government Russia to modify the vexatious requirements who necessary discreditable. Smith has compiled with every peased upon the traveler. No other country, and discreditable. Smith has compiled with every pease of the intricate acquisitions; and, knowing the, innot felt any of the anxiety which made me proceeds superfluously early (as it might seem) to the misus station. When, therefore, in return for the product of his money, he is asked for his Moscow passes, he confidently draws it forth; but the bell is ringing, se heavens! he is told that it is not risked. He pasts the risa of his Cousul, to the next cisa of the seator has in the district form which he has last and only in each heaven. The intrinsic form which he has last and only in each heaven. He is told that it is not risked. He pasts the district form which he has last an only in each heaven. The English speaking clerk has, unlikely, his attention engaged elsewhere for the monach his is with German that poor for the product of his more repor

crowd, and arrives at the counter where he accessed his passenger ticket only to find that the least is in the train, which, nearly a quarter of a miss and windowed doors. There will be no more that day, except a special one for his Imperial that day, except a special one for his Imperial that day, except a special one for his Imperial that day, except as special one for his Imperial that day, except as special one for his Imperial that day, except as special one for his Imperial that day, except as special one for his Imperial that day, except as special one for his Imperial that trains the series of Oldenburg, it contained the fifth or sixth as installment of the Emperor's "golden coaches." Is saw them afterward at the Moscow station—a paid their splendor purposely and coquettishly reveals the admiring and wonder-stricken gaze of the sem must gorgeous equipages in which a sovereign more comfortable than ours. Instead of so many more comfortable than ours. Instead of so many titions, each locked so that the passengers caused on municate with the guards between the stations, by consist each of immense compartments, in which a spacious gangway opening left and right into the engine, the travelers sitting opposite other, but not so close that their kness compartment, down the whole length of which these as spacious gangway opening left and right into empire of opposing seats, which, besides, have side riso or supports for the arms. Thus when a passengent of opposing seats, which, besides, have aid anybody as he proceeds up the longitudinal centing any so, in search of the place that may suit him either hand. If he is tired, or wishes to change is eat, or to breathe a little fresh air on the exterior lating, or to stretch himself, or even to take a little was he can of course do so with the same immunity from anyosance on the part of the rest. If he wishes is left, not of the passengers and guard extends all through the training of cach long carriage, where the offer she passengers and guard extends all through th

coffee with a rusk is eighteen pence (25 kopeks). Dis-ner to a hungry person cannot be less than a rouble under the mildest circumstances (i. e. 3s. 2d.) His tes will not stand him in less. His supper will be equal in cost to his dinner; and, in the down journry, superior to it in qualities.

cost to his dinner; and, in the down journry, superior to it in quality.

It is these continual and prolonged stoppage, and not the inferior rate of speed, which makes the journey last twenty-two hours. It is considerably under 700 years—and there are nearly feur versts to the English mile. The distance from Paris to Strasburg is nearly as great, and the journey is performed in twelve sour. The distance from Paris to Bordeaux requires bell hours, and yet from St. Petersburg to Moscow twenty two hours are consumed, although the speed, when train is in motion, averages thirty miles as hour averages therefore, and the speed, when the train was full of Russian officers. I found them as I have always found, and as all agree that they are I have always found, and as all agree the singularly intelligent and polite. One of the